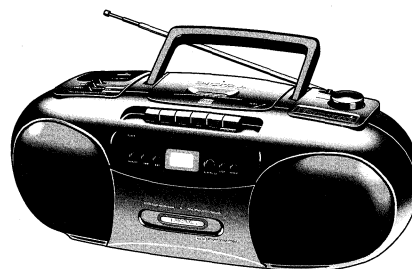


Service
Service
Service



Service Manual

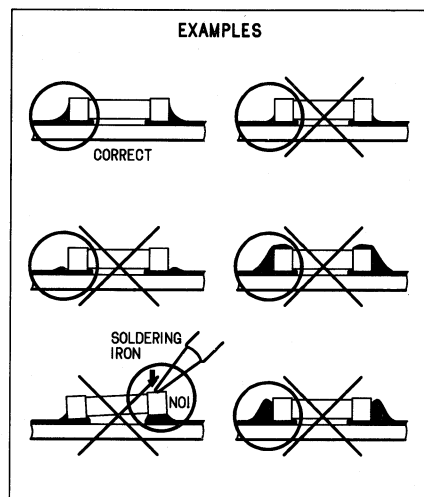
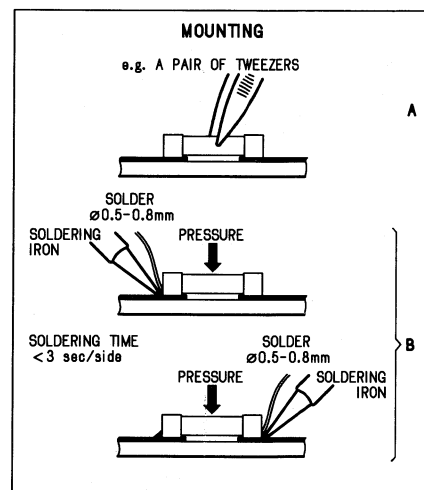
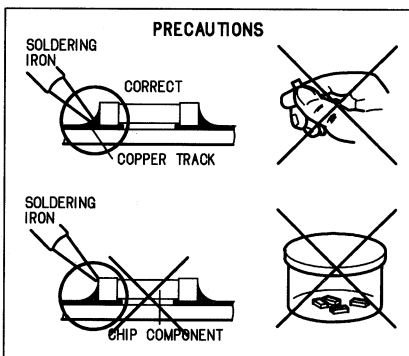
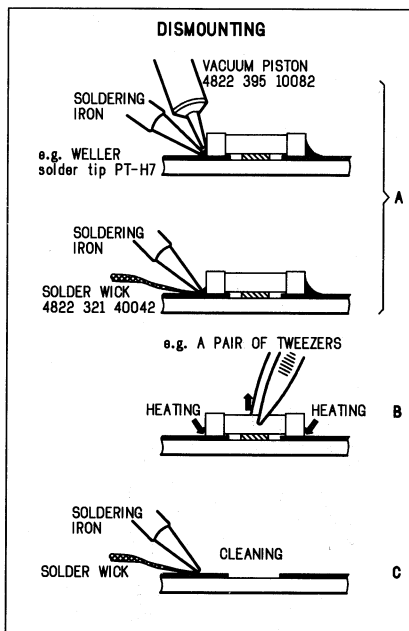
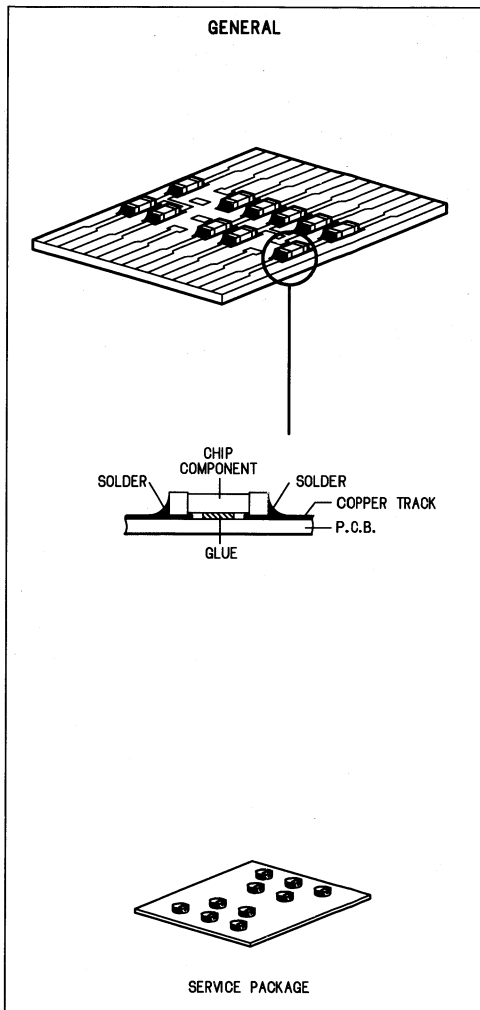


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**CLASS 1
LASER PRODUCT**

3122 110 03420

HANDLING CHIP COMPONENTS



GB WARNING

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools at this potential.

F ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation. Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le braceleterti d'une résistance de sécurité. Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

ESD



D WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD). Unvorsichtige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren. Sorgen Sie dafür, daß sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind. Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

NL WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD). Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat. Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

I AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD). La loro longevità potrebbe essere fortemente ridotta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza. Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Originalersatzteile zu verwenden.

I

Le norme di sicurezza estigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

F

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

NL

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

S Varning !

Ösynlig laserstrålning när apparaten är öppnad och spårren är urkopplad. Betrakta ej strålen.

DK Advarsel !

Usynlig laserstrålning ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for strålning.

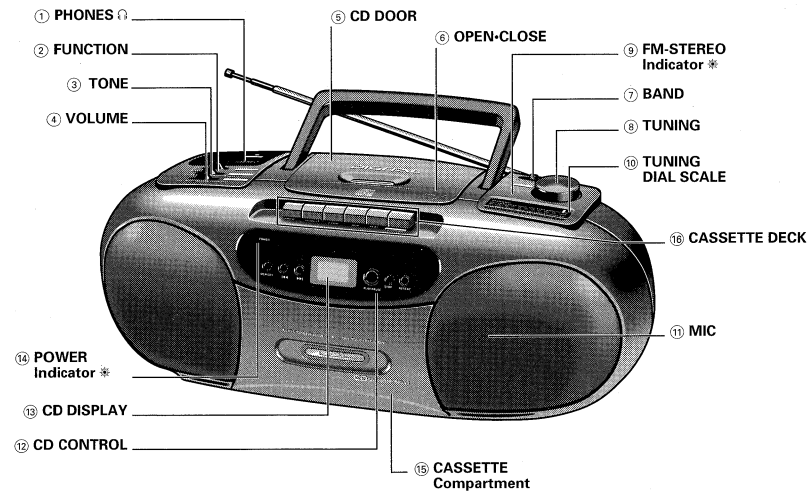
SF Varoitus !

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen !

F

Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne.

CONNECTIONS AND CONTROLS

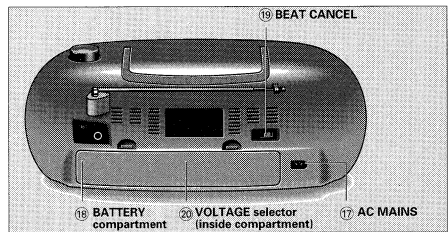


TOP AND FRONT PANEL

- ① **PHONES** stereo headphone outlet
- ② **Function** switch
 - **CD**: To switch to CD mode/power on
 - **TAPE**: to switch to Tape mode/power off
 - **RADIO**: to switch to Radio mode/power on
- ③ **TONE** control
- ④ **VOLUME** control - to adjust the volume level.
- ⑤ **CD Door**
- ⑥ **OPEN-CLOSE** - to open the CD door
- ⑦ **BAND** switch
 - To select between MW(AM), FM stereo and FM mono
- ⑧ **TUNING** control - to tune to a radio stations
- ⑨ **FM STEREO Indicator *** control - Lights up when receiving on FM stereo stations
- ⑩ **TUNING DIAL SCALE**
- ⑪ **BUILT-IN MIC** - Under the speaker grill
- ⑫ **CD buttons**
 - ▶ **PLAY/PAUSE** - To start and interrupt playback
 - **STOP** button - To stop playback
 - **REPEAT** - To repeat one/all tracks
 - ◀▶ **SKIP** - To skip and search backward / forward
 - **PROG** - To program the track numbers in the memory.
- ⑬ **CD DISPLAY** - To indicate what function the unit is performing
 - ▶: **PLAY**
 - ▶ **flashing**: **PAUSE**

- PGM: Programming
- REPEAT: Repeat one
- REPEAT flashing: Repeat all
- ER - Error
- ⑭ **POWER Indicator *** - Lights up when power supply is on.
- ⑮ **CASSETTE COMPARTMENT**
- ⑯ **CASSETTE DECK**
 - **PAUSE** button
 - **STOP/EJECT** button
 - **F.FWD** button
 - **REWIND** button
 - **PLAY** button
 - **REC(ORD)/CD SYNCHRO** button

BACK PANEL



- ⑰ **AC MAINS** - socket for mains lead
- ⑱ **BATTERIES Compartment**
- ⑲ **BEAT CANCEL** Switch - For eliminating possible whistle tones during AM recordings
- ⑳ **VOLTAGE** selector (not all versions)

SPECIFICATIONS

GENERAL

Mains voltage	-/00 : 230V
	-/17 : 120V
Mains frequency	-/00 : 50Hz
	-/17 : 50/60Hz
Battery	: 10.5V (R20 x 7)
Power consumption	: 35W
Dimension (W x H x D)	: 440 x 160 x 220mm
Weight	: 3Kg

AMPLIFIER

Output power	mains : 2 x 2 W
	battery : 2 x 2 W
Speaker impedance	: 2 x 6 ohm
Frequency response	: 100Hz - 8KHz (-3dB)

AUDIO/CASSETTE

Tape speed	: 4.76cm/s ± 3%
Wow & flutter	: < 0.5 WTD DIN
Fast-wind time (C60)	: < 130 sec.
Frequency response	: 125 - 10KHz (± 6dB)
S/N ratio	: > 40dB
Erase ratio	: > 50dB (w/BPF)
Bias frequency	: 60 ± 10KHz

COMPACT DISC

Frequency response	± 3dB : 63 - 14KHz
Signal/hiss ratio	: > 62dB
Distortion	at 1KHz : < 1%
Channel difference	at 1KHz : < 3dB
Channel crosstalk	at 1KHz : > 36dB
Laser wavelength	: 780 ± 20nm
Laser light power	: < 0.3mW

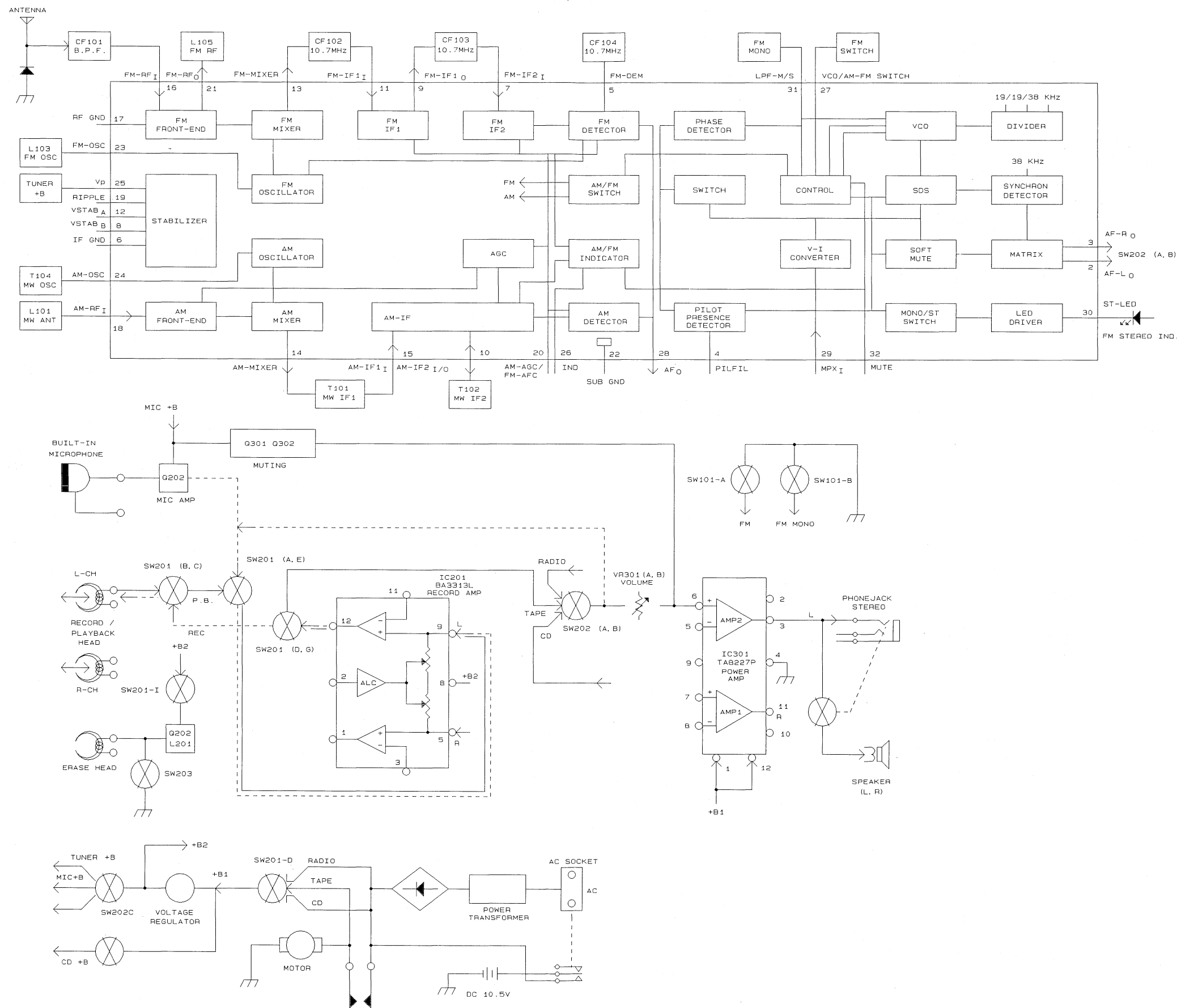
TUNER - FM section

Tuning range	: 87.25 - 108.35MHz
IF frequency	: 10.7MHz
Sensitivity	: < 22dBf at 26dB S/N
Selectivity	: > 20dB at 600KHz B.W.
IF rejection	: > 60dB
Image rejection	: > 26dB
AM suppression	: > 23dB
Stereo separation	1KHz : > 20dB

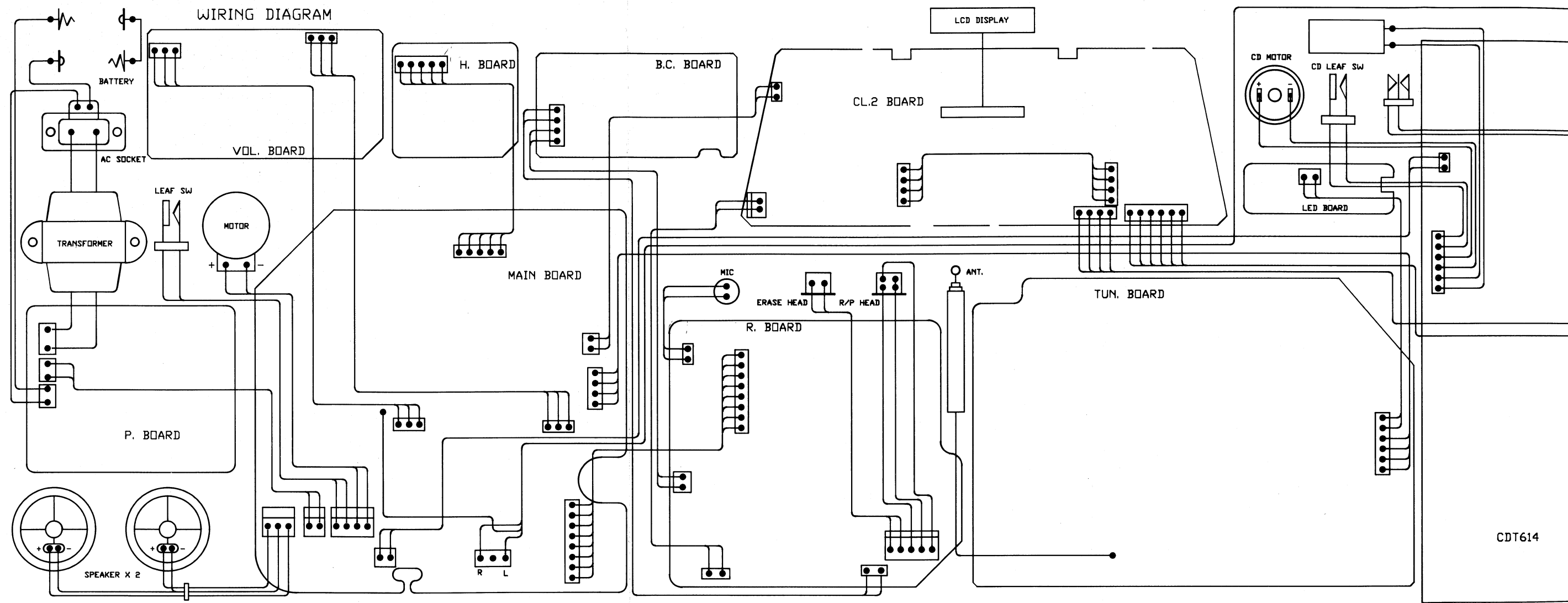
TUNER - AM section

Tuning range	MW : 520 - 1620KHz
	-/17 AM : 520 - 1700KHz
IF frequency	: 468 ± 3KHz
Sensitivity	MW : < 2000µV/m 26dB S/N
Selectivity	MW : > 23dB
IF rejection	MW : > 34dB
Image rejection	MW : > 36dB

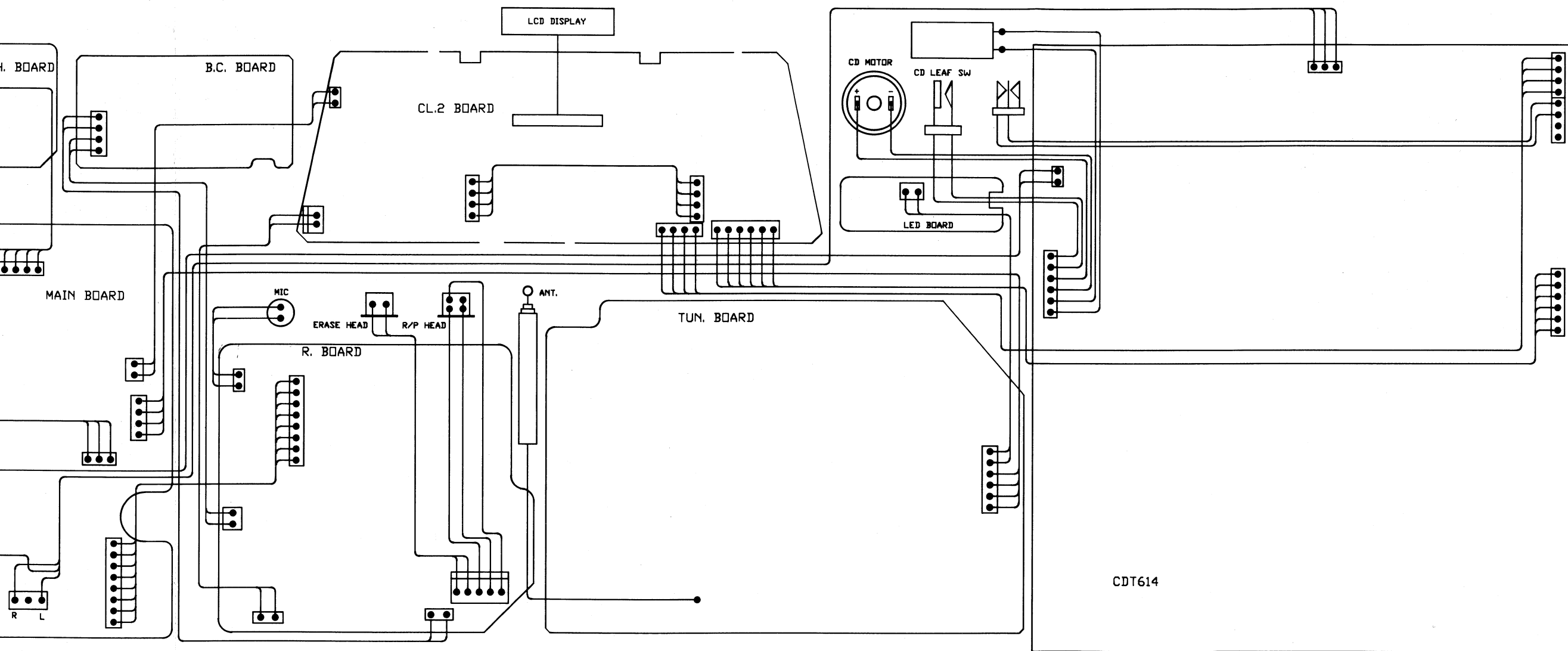
BLOCK DIAGRAM
























WIRING DIAGRAM



CDT614



RADIO ALIGNMENT

								
AM IF								
AM or MW	468KHz		min.	T101 T102		 max.		
AM RF								
MW *	516.5KHz		max.	T104		 max.		
	+ 1631.5KHz		min.	TC4				
	600KHz			L101		 max.		
	1400KHz			CT3				
FM RF								
FM #	87.35MHz		max.	L105		 max.		
	108.35MHz		min.	TC2				
	90MHz			L2		 max.		
	106MHz			CT1				

* Mod. 1KHz 30%
10nF + 15E
+ 1710KHz for -/17 version

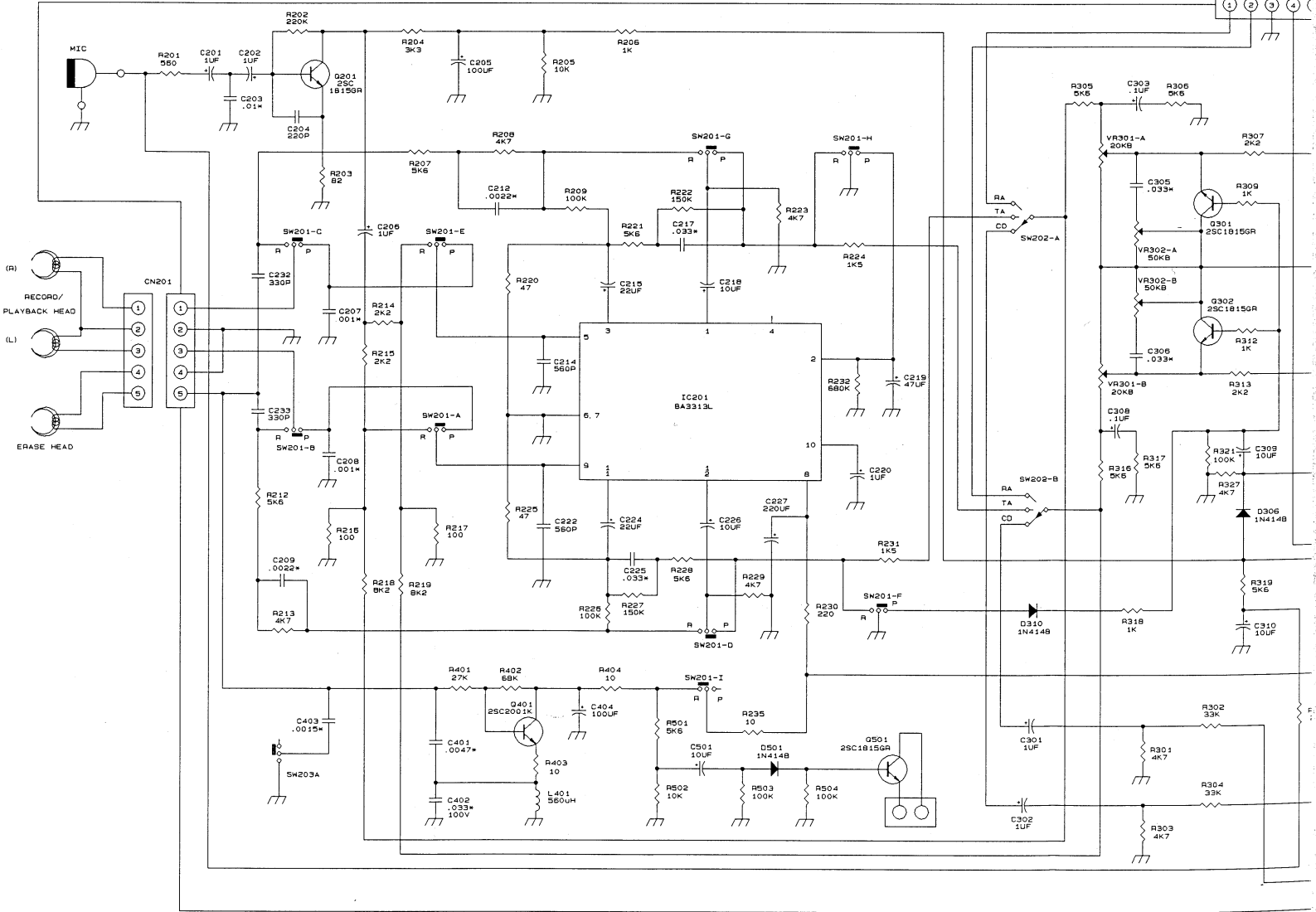
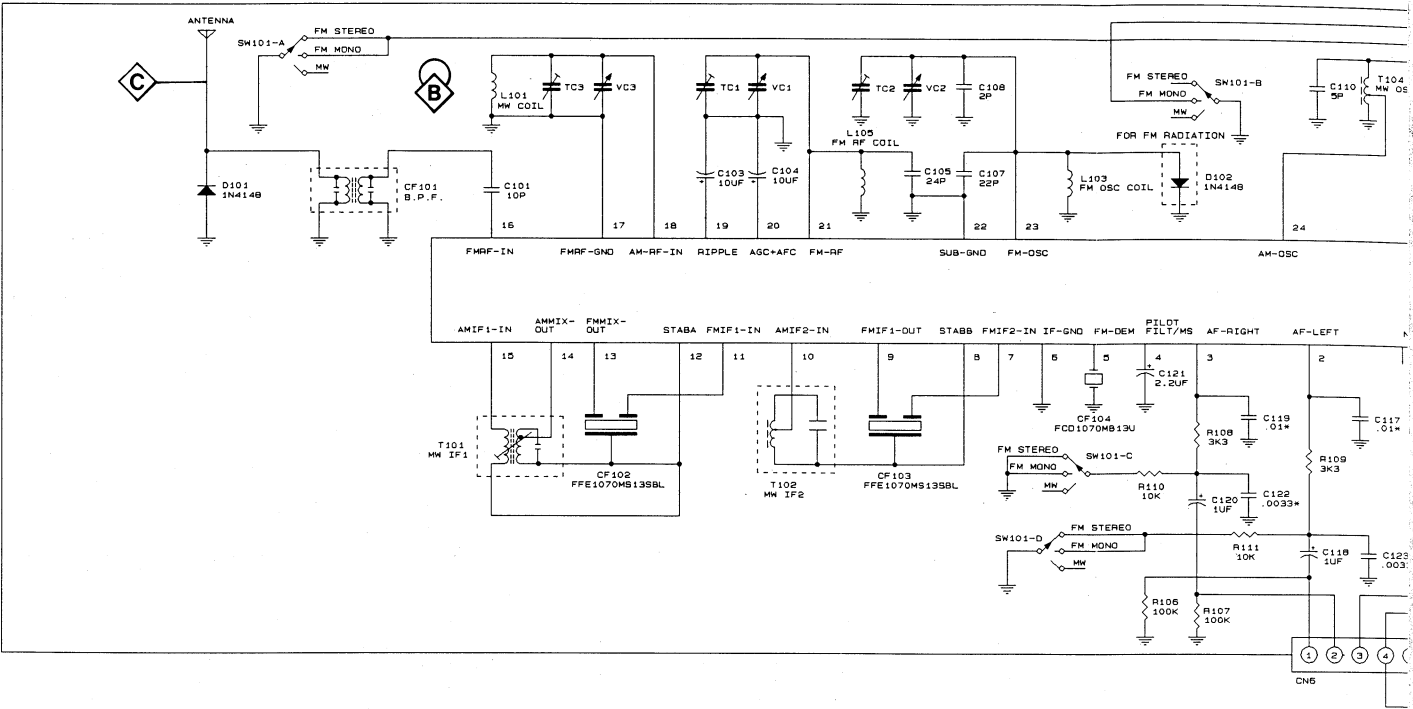
Repeat

CASSETTE ADJUSTMENT

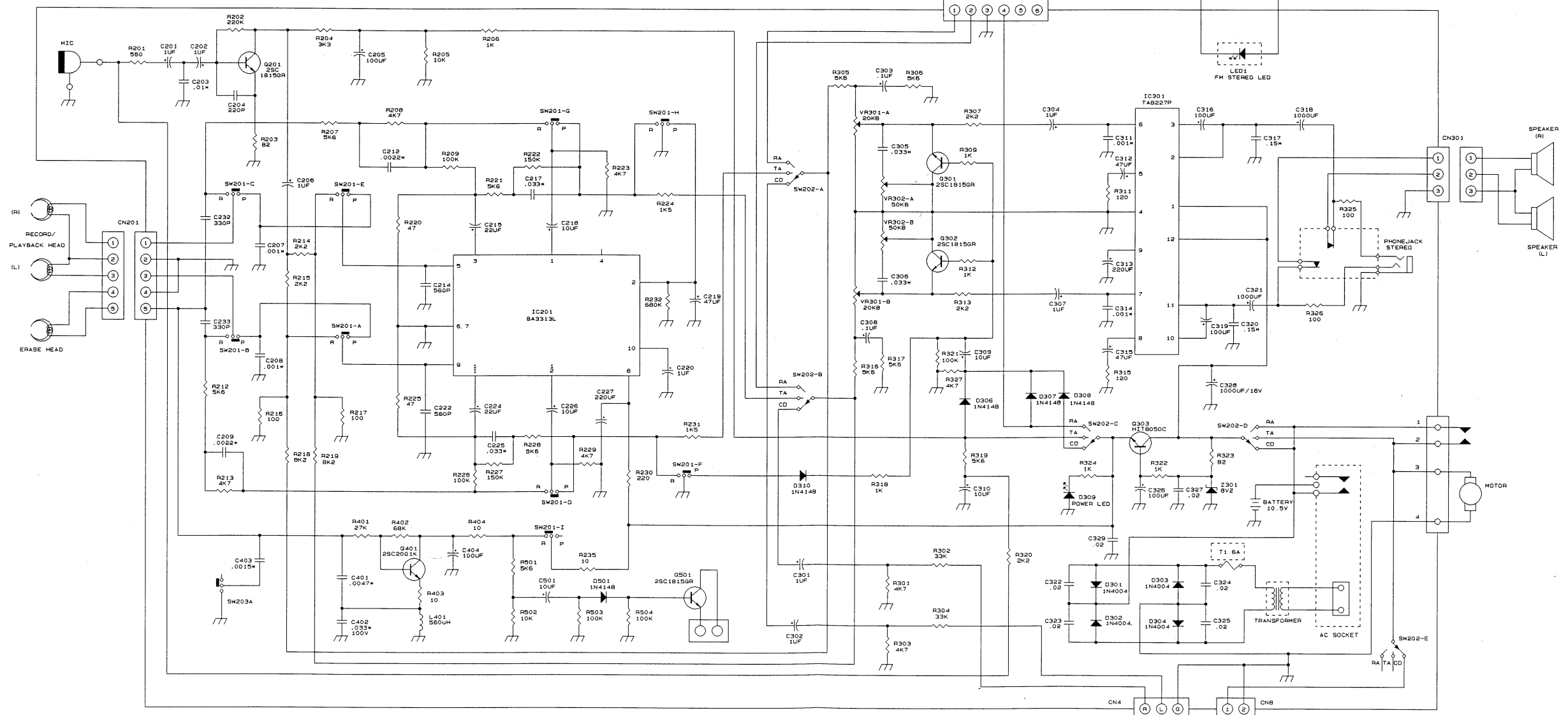
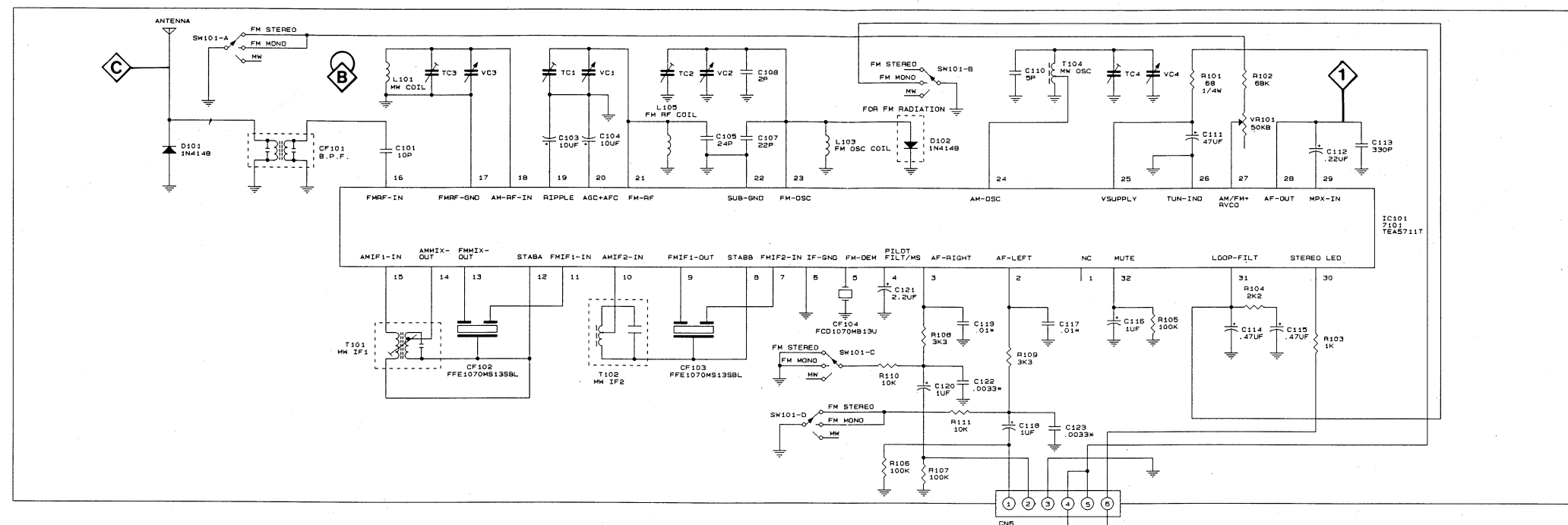
Adjustment	Cassette	SK...	Tape Deck	Measure on	Read on	Adjust with	Adjust to
Head Azimuth	SBC420* 8KHz	Tape	Play	H/P Jack	MV Meter	Left screw of R/P head	max. L = R
Tape speed wow & flutter	SBC420* 3150Hz	Tape	Play	H/P Jack	Wow & flutter meter	Preset VR in motor	**a

* SBC420 : 4822 397 30071
**a The maximum permissible speed deviation is ±3%.
Moreover, the wow and flutter value can be read.

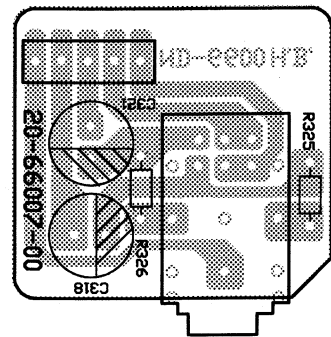
CIRCUIT DIAGRAM



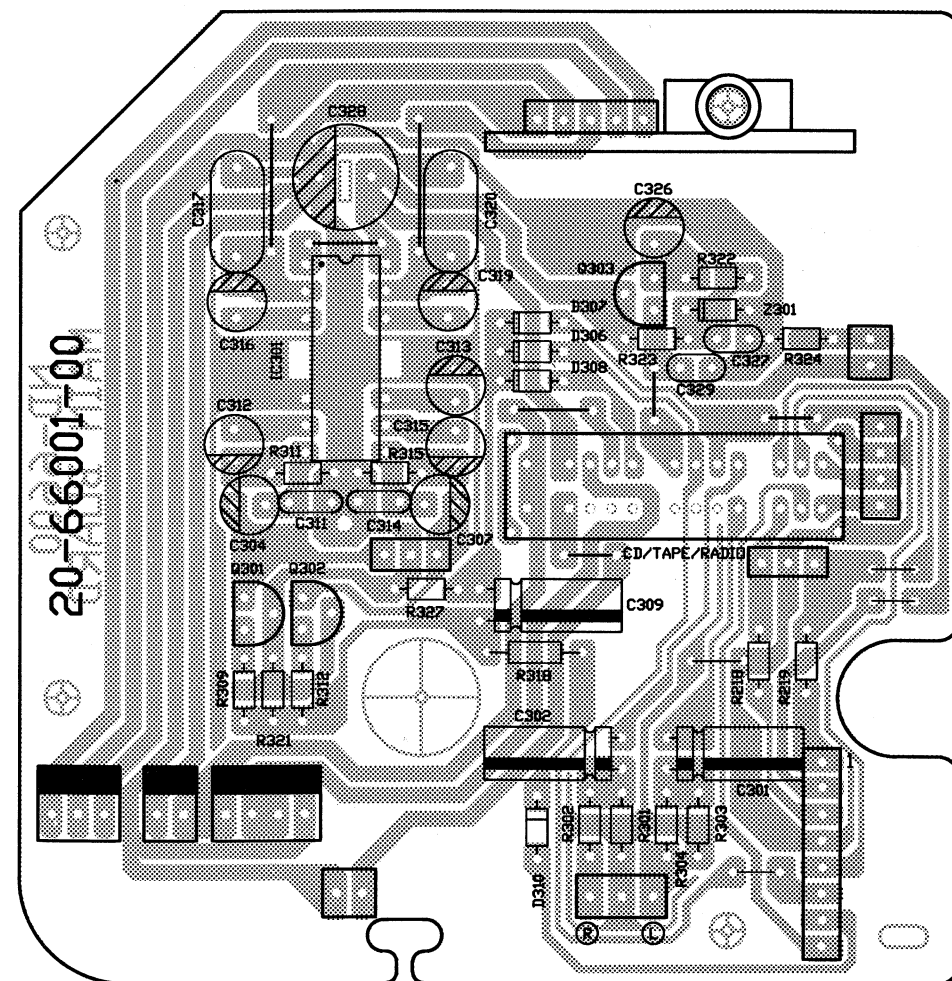
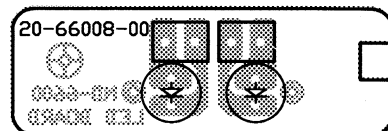
Adjust to
max. L = R
**a



HEADPHONE BOARD

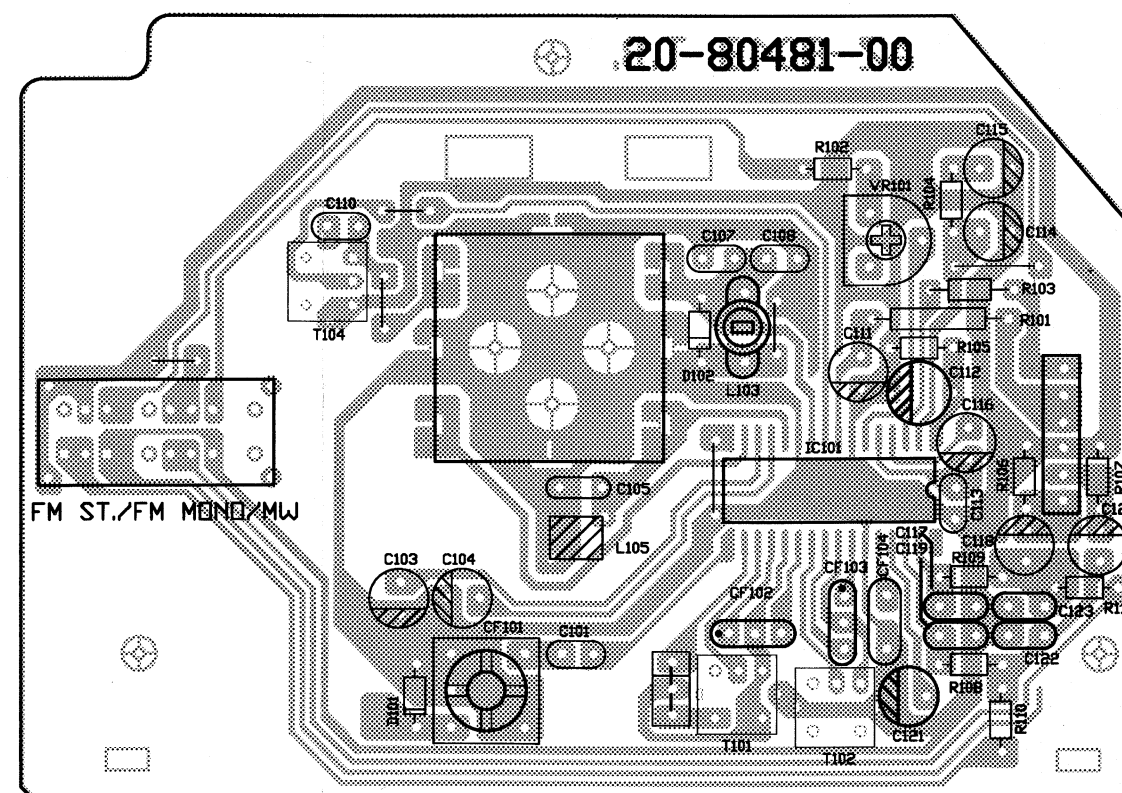


LED BOARD



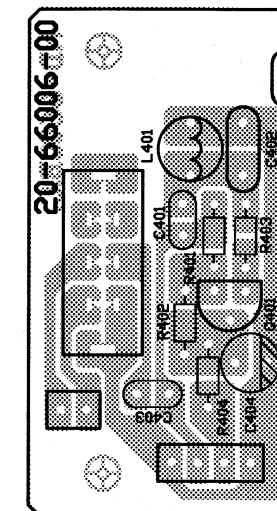
MAIN BOARD

IC 101				TEA5711T			
PIN	FM	PIN	FM	PIN	AM	PIN	AM
1	NIL	17	GND	1	NIL	17	GND
2	0.5	18	0	2	0.66	18	0
3	0.5	19	2.09	3	0.66	19	2.1
4	1	20	0.43	4	1	20	0.14
5	1.02	21	0	5	0.02	21	0
6	GND	22	GND	6	GND	22	GND
7	0.74	23	0	7	1	23	0
8	1.41	24	0	8	1.45	24	0
9	0.67	25	6.58	9	0.94	25	6.76
10	1.41	26	GND	10	1.45	26	GND
11	0.69	27	0.99	11	0.96	27	1.12
12	0.39	28	0.6	12	1.42	28	0.82
13	1.03	29	1.23	13	0	29	1.24
14	1.39	30	6.23	14	1.42	30	6.31
15	1.39	31	0	15	1.42	31	0.15
16	0.71	32	0.76	16	0.02	32	0.7

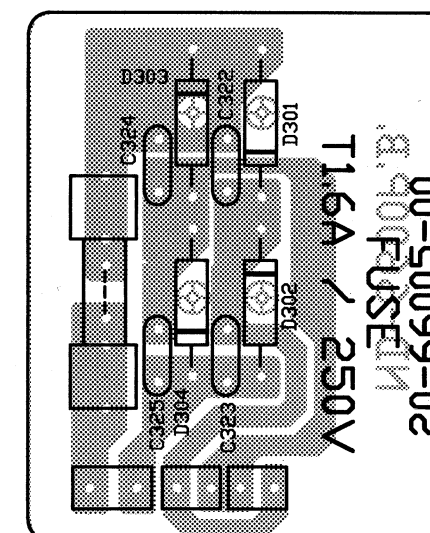
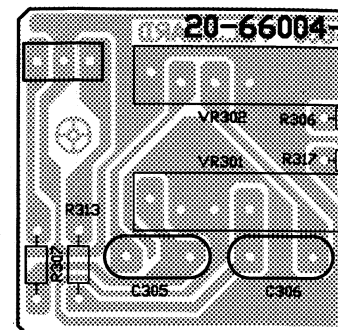


TUNER BOARD

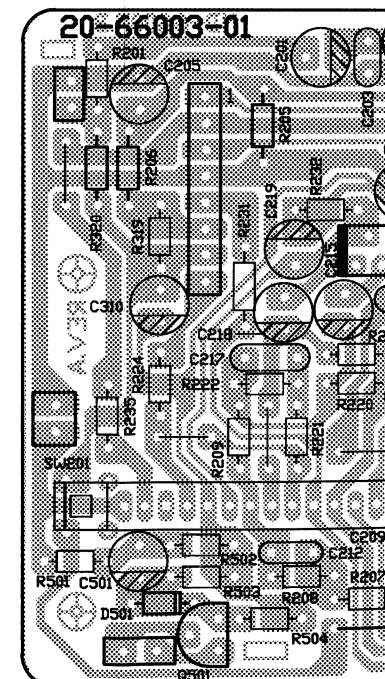
BEAT CUT



VOLUME BOARD



POWER BOARD



RECORD BOARD

IC 101				TEA5711T			
PIN	FM	PIN	FM	PIN	AM	PIN	AM
1	NIL	17	GND	1	NIL	17	GND
2	0.5	18	0	2	0.66	18	0
3	0.5	19	2.09	3	0.66	19	2.1
4	1	20	0.43	4	1	20	0.14
5	1.02	21	0	5	0.02	21	0
6	GND	22	GND	6	GND	22	GND
7	0.74	23	0	7	1	23	0
8	1.41	24	0	8	1.45	24	0
9	0.67	25	6.58	9	0.94	25	6.76
10	1.41	26	GND	10	1.45	26	GND
11	0.69	27	0.99	11	0.96	27	1.12
12	0.39	28	0.6	12	1.42	28	0.82
13	1.03	29	1.23	13	0	29	1.24
14	1.39	30	6.23	14	1.42	30	6.31
15	1.39	31	0	15	1.42	31	0.15
16	0.71	32	0.76	16	0.02	32	0.7

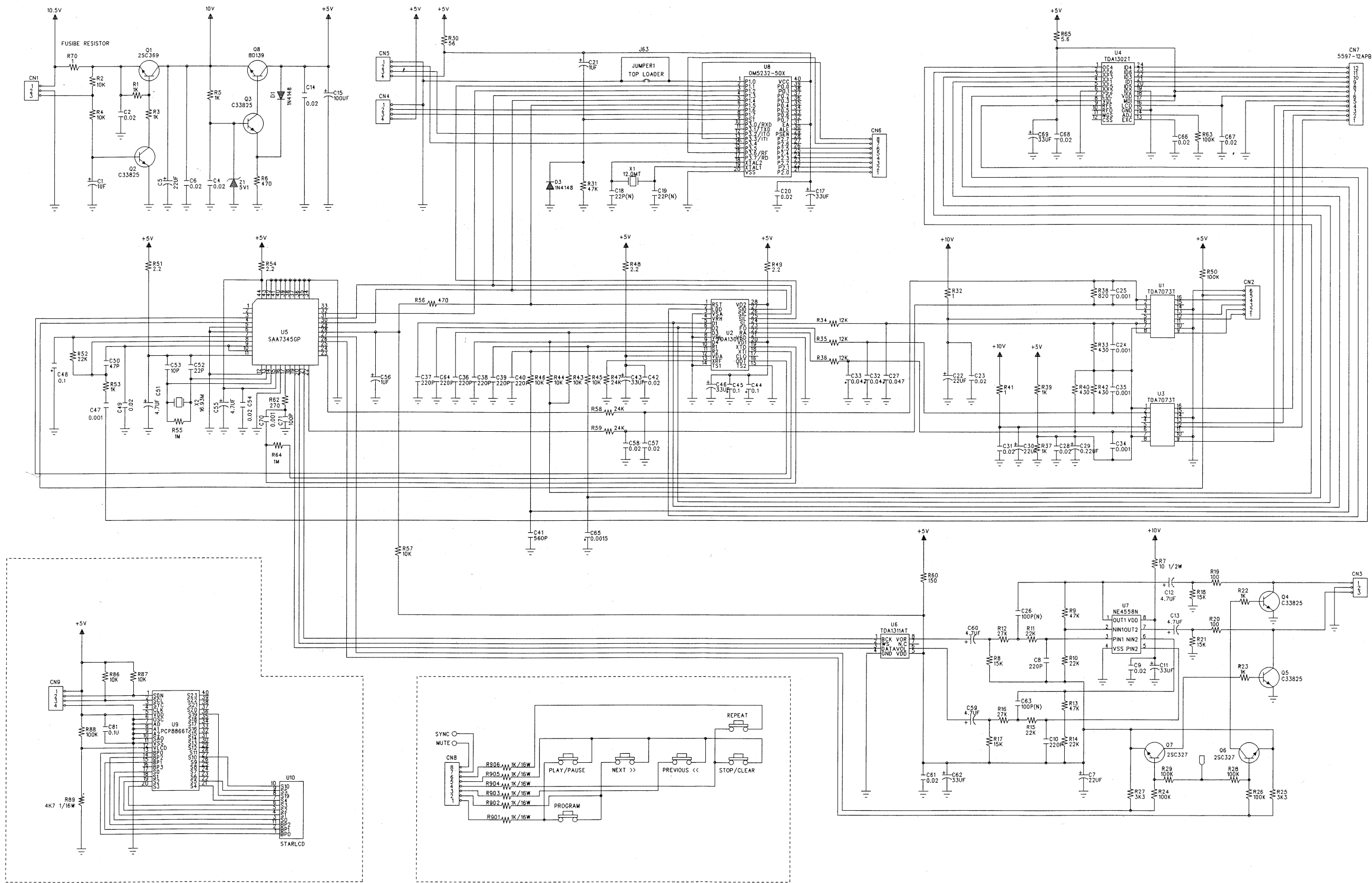
The diagram illustrates the internal components of a T1.6A / 250V fuse assembly. It shows a central circuit board with various components labeled: D301, D302, D303, D304, D322, D323, D324, and C325. The components are arranged in a symmetrical pattern around a central vertical axis. The diagram is a technical drawing of a fuse assembly, showing the internal components and their connections. The components are labeled with part numbers: D301, D302, D303, D304, D322, D323, D324, and C325. The diagram is a technical drawing of a fuse assembly, showing the internal components and their connections. The components are labeled with part numbers: D301, D302, D303, D304, D322, D323, D324, and C325.

IC103	
PIN	VOL
1	13.2V
2	6.95V
3	12.8V
4	7.03V
5	0.59V
6	6.2mV
7	6.2mV
8	0.59V
9	GND
10	12.8V
11	6.95V
12	13.2V

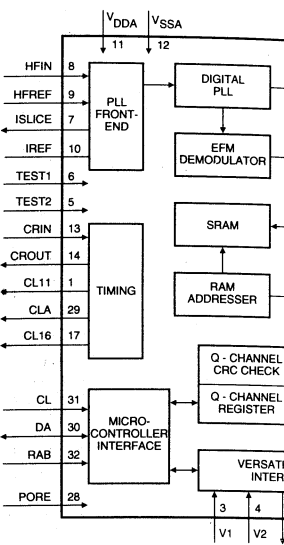
	IC201	BA3313L
	PIN	PLAY REC
1	3.26	2.98
2	0	0.79
3	0.6	0.61
4	NIL	NIL
5	0	0
6	GND	GND
7	GND	GND
8	7.43	6.89
9	0	0
10	7.35	6.82
11	0.6	0.61
12	3.26	2.98

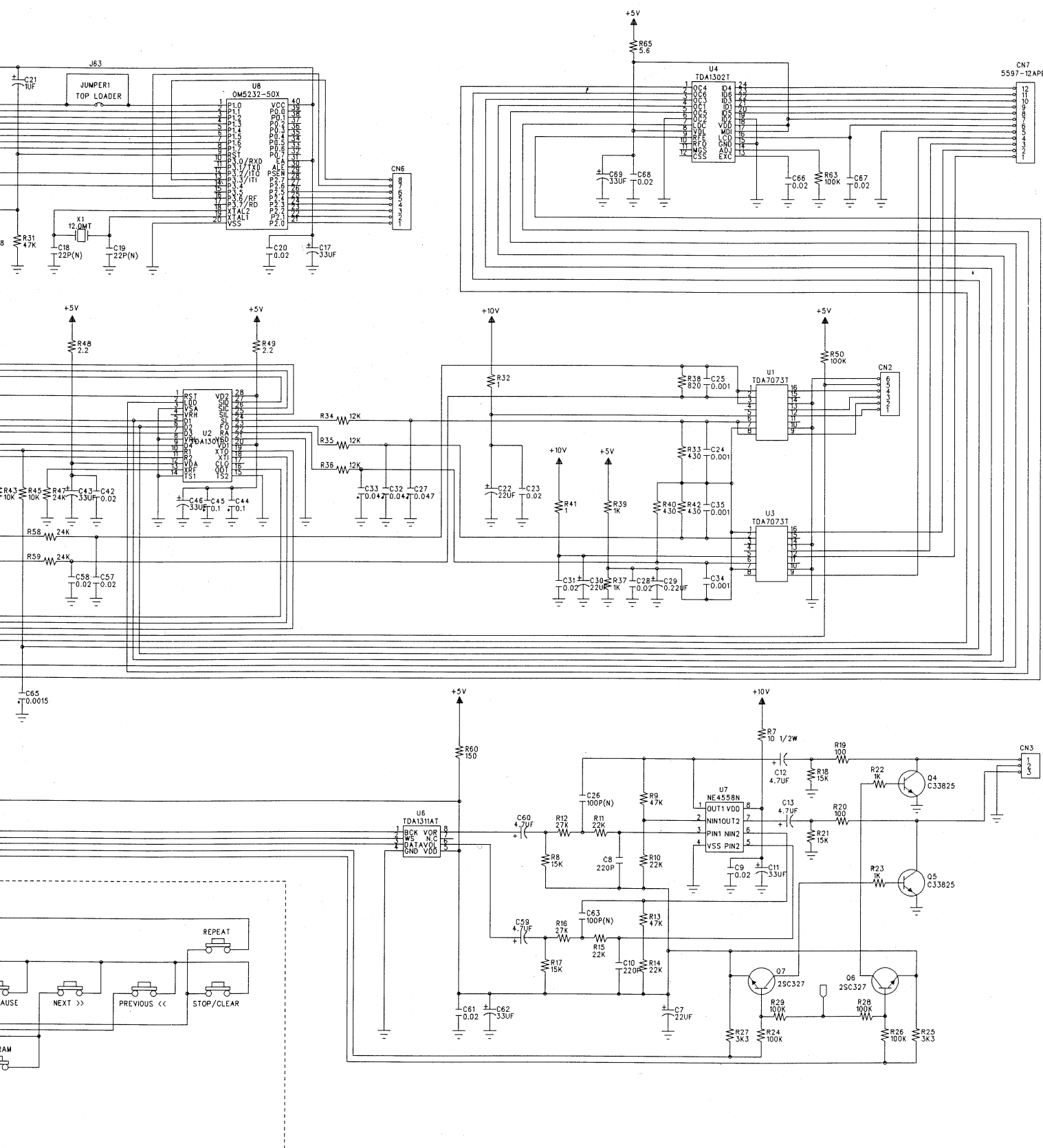
	B	C	E
Q201	0.74	1.86	0.1
Q301	1.2m	GND	0.4m
Q302	1.2m	GND	0.4m
Q303	13.25	8.71	8.08
Q401	0.8m	1m	0.7m
Q501	0.45	0.7m	0.7m

CD - CIRCUIT DIAGRAM

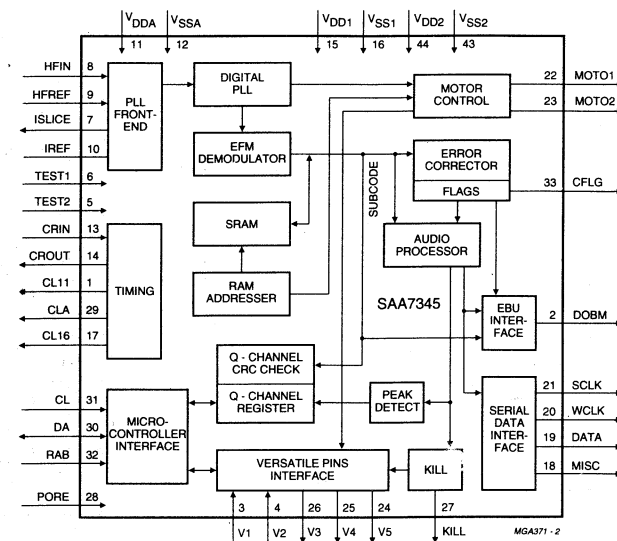


SAA7345





SAA7345



TDA1311AT

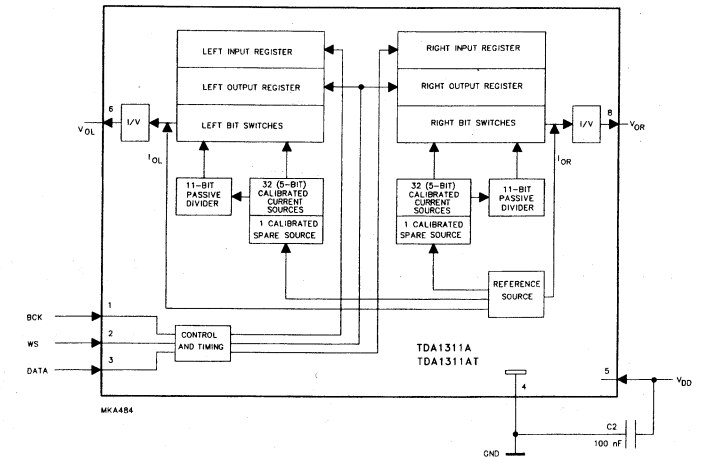
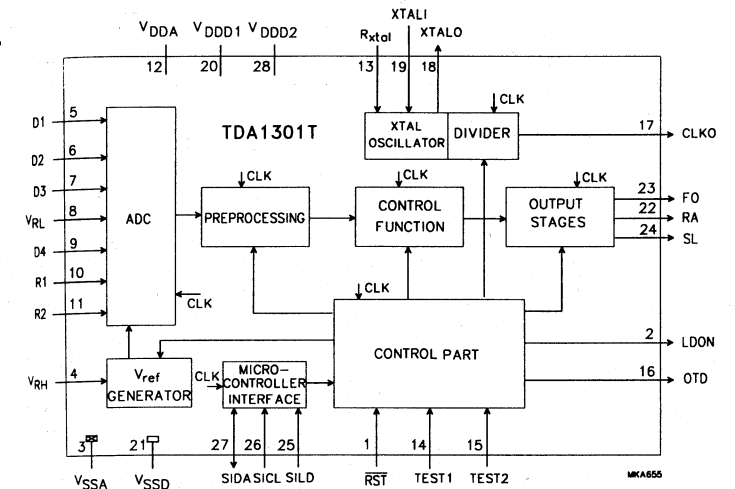
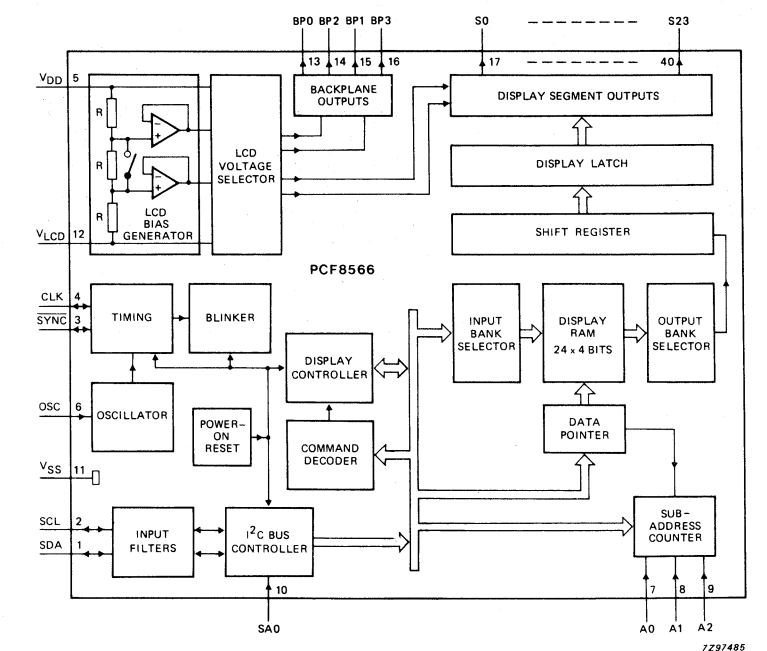


Fig. 1 Block diagram.

TDA1301T



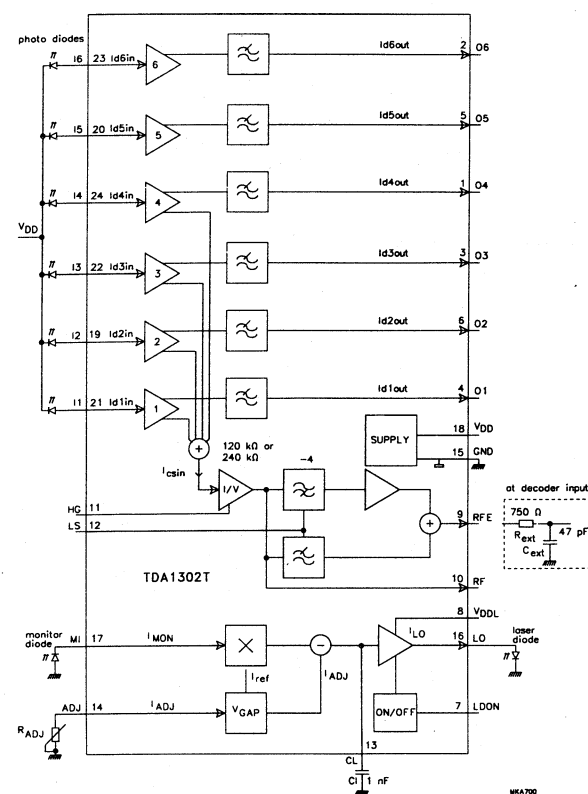
PCF8566



[illegible]

Block diagram of the internal structure of the 68000 microprocessor. The diagram shows the CPU block connected to the OSCILLATOR AND TIMING block. The OSCILLATOR AND TIMING block is connected to XTAL2 and XTAL1. XTAL2 is connected to the CPU. XTAL1 is connected to the CPU and also to the INT0 and INT1 pins. The INT0 and INT1 pins are labeled as 'external Interrupts shared with 68010'.

The diagram illustrates the internal circuitry of the TDA7073A/TDA7073AT audio amplifier. It features two main operational amplifier stages, labeled I and II. Stage I is configured with a non-inverting input (pin 2) and an inverting input (pin 1). Its outputs are a positive output (pin 16) and a negative output (pin 13). Stage II is similarly configured with a non-inverting input (pin 6) and an inverting input (pin 7), producing a positive output (pin 9) and a negative output (pin 12). The circuit includes feedback loops with resistors and is powered by a 5V supply (V_F). Pins 3, 4, 8, 11, and 15 are connected to ground. Pins 10 and 14 are connected to ground. A warning box indicates 'SHORT - CIRCUIT AND THERMAL PROTECTION'.



V_p

5

positive input 1 → 2

negative input 1 → 1

16 → positive output 1

13 → negative output 1

TDA7073A
TDA7073AT

SHORT-CIRCUIT AND
THERMAL PROTECTION

positive input 2 → 6

negative input 2 → 7

12 → negative output 2

9 → positive output 2

10 → ground 2

14 → ground 1

3, 4, 8, 11, 15 → n.c.

MCD382 - 1

OM5232

frequency reference

XTAL2 XTAL1

OSCILLATOR AND TIMING

CPU

Internal interrupts

PROGRAM MEMORY (8 K X 8 ROM)

DATA MEMORY (256 X 8 RAM)

counters shared with port3

T0 T1

TWO 16-BIT TIMER/EVENT COUNTERS

I²C SERIAL I/O

shared with port 1

SDA SCL

64 K-BYTE BUS EXPANSION CONTROL

PROGRAMMABLE I/O

parallel ports, address/data bus and I/O pins

PROGRAMMABLE SERIAL PORT FULL DUPLEX UART SYNCHRONOUS SHIFT

serial in serial out

shared with port 3

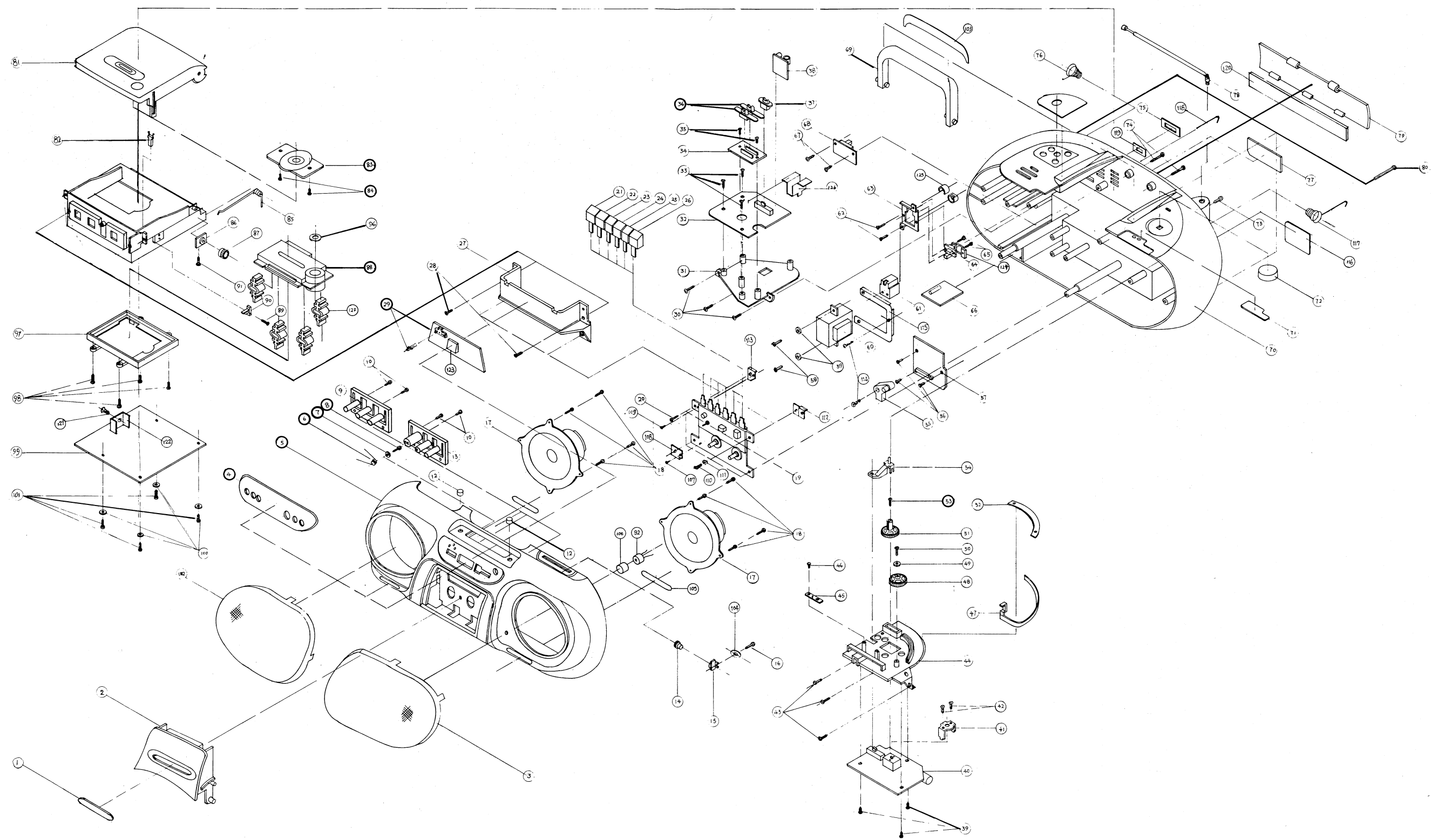
control

external interrupts shared with port3

INT0 INT1

V_{DD} V_{SS}

EXPLODED VIEW DIAGRAM - CABINET



MECHANICAL PARTSLIST - CABINET

1	4822 450 62495	Cass. Door Lens	71	4822 450 62523	Dial Lens (AZ8049 -/00)
2	4822 443 64542	Cass. Door	71	4822 450 62526	Dial Lens (AZ8049 -/17)
3	4822 458 30701	Speaker Grille (R)	71	4822 450 62496	Dial Lens (ND6600/RD6060)
4	4822 450 62518	Display Lens (AZ8049 -/00)	72	4822 413 51514	Tuning Knob
4	4822 450 62492	Display Lens (AZ8049 -/17)	76	4822 290 81619	Batt. Contact (-ve)
4	4822 450 62492	Display Lens (ND6600 -/46)	78	4822 303 30448	Swivel Rod Antenna
4	4822 450 62487	Display Lens (ND6600 -/48)	79	4822 423 41286	Battery Door
4	4822 450 62489	Display Lens (RD6060 -/43)	81	4822 444 61075	CD Cover
4	4822 450 62493	Display Lens (RD6060 -/58)	82	4822 276 13594	Catch Switch
5	4822 423 51207	Front Cabinet	85	4822 492 52433	CD Door Spring
6	4822 492 42765	Cass. Door Spring	86	4822 256 92292	Gear Holder (A)
9	4822 410 63851	CD Knob (L)	87	4822 522 33555	Gear (A)
13	4822 410 63849	CD Knob (R)	88	4822 691 30278	CD Mech CDM12.1
14	4822 522 33556	Gear (B)	102	4822 458 30702	Speaker Grille (L)
15	4822 256 92293	Gear Holder (B)	117	4822 290 81621	Batt. Contact (+/-ve)
19	4822 691 21019	Cass. Deck TK20FX-V613	118	4822 290 81703	Batt. Contact (+ve)
21	4822 410 63848	Cass. Knob (L)	124	4822 402 61412	Magnet Clamper Assy
22	4822 410 63846	Cass. Knob		4822 410 63702	Auto Reverse Knob
23	4822 410 63846	Cass. Knob		4822 450 62494	CD Door Lens
24	4822 410 63846	Cass. Knob		4822 462 42223	Sponge Foot (AZ8049)
25	4822 410 63846	Cass. Knob		4822 462 42168	Rubber Foot (ND6600/RD6060)
26	4822 410 63847	Cass. Knob (R)		4822 325 50215	Suspension Grommet
31	4822 402 61561	Display Bracket		4822 736 22535	Instr. Booklet (AZ8049 -/00)
36	4822 411 62038	Slide Volume Knob		4822 736 22536	Instr. Booklet (AZ8049 -/17)
37	4822 413 51516	Function Switch Knob		4822 736 22489	Instr. Booklet (ND6600/RD6060)
47	4822 450 81231	Dial Pointer			
48	4822 522 33554	Dial Drum Gear			
51	4822 522 33553	Tuning Gear			
54	4822 413 51515	Band Switch Knob			
69	4822 498 10533	Handle			

Note : Only those parts mentioned in the list are normal service parts.

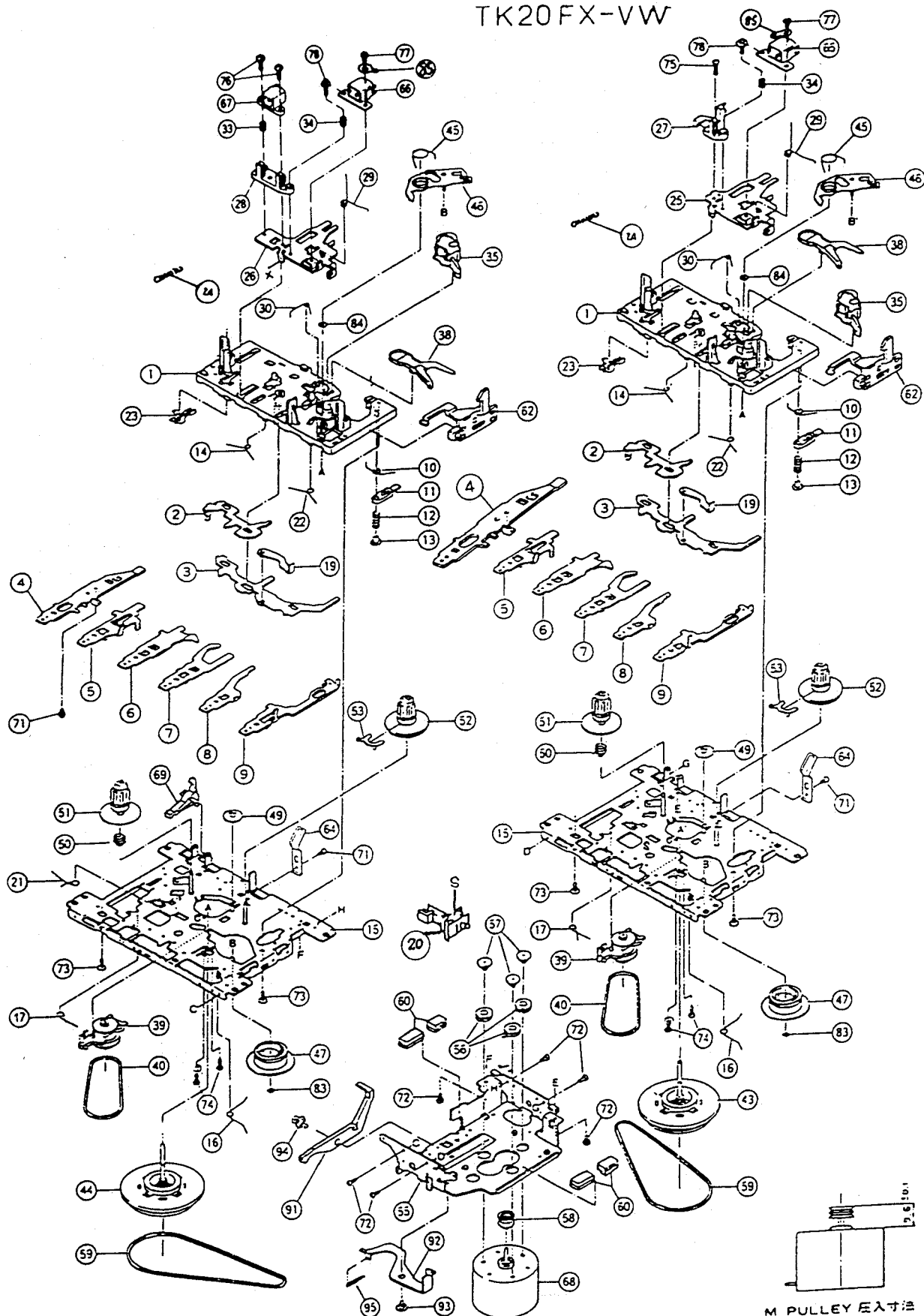
MECHANICAL PARTSLIST - TAPE DECK

32	4822 403 20244	Roller Arm Assy
41	4822 358 31331	F. Belt
55	4822 358 31329	Main Belt
58	4822 403 71221	Eject Slider
62	4822 249 10511	R/P Head
63	4822 249 40324	E Head
64	4822 361 21656	Motor

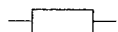
Note : Only those parts mentioned in the list are normal service parts.

EXPLODED VIEW DIAGRAM - TAPE DECK

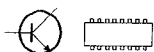
TK20FX-VW



ELECTRICAL PARTSLIST



R70	4822 052 11108	Fusible Rst 1R 0.5W
RV101	4822 101 11292	Semi-Fixed Res 50K
VR301	4822 105 11133	Slide VR A20K
VR302	4822 105 11134	Slider VR A50K



Q1	5322 130 44593	Trans. BC369
Q2	4822 130 40958	Trans. BC338-25
Q3	4822 130 40958	Trans. BC338-25
Q4	4822 130 40958	Trans. BC338-25
Q5	4822 130 40958	Trans. BC338-25
Q6	4822 130 41246	Trans. BC327-25
Q7	4822 130 41246	Trans. BC327-25
Q8	4822 130 40824	Trans. BD138
Q201	4822 130 63773	Trans. KTC3198-GR
Q301	4822 130 63773	Trans. KTC3198-GR
Q302	4822 130 63773	Trans. KTC3198-GR
Q303	4822 130 63664	Trans. 8050C
Q401	4822 130 60258	Trans. 2SC2001K
Q501	4822 130 63773	Trans. KTC3198-GR
U1	5322 209 32077	IC TDA7073AT
U2	4822 209 32763	IC TDA1301T
U3	5322 209 32077	IC TDA7073AT
U4	4822 209 33992	IC TDA1302T
U5	4822 209 33339	IC SAA7345GP/M5
U6	4822 209 33993	IC TDA1311AT
U7	4822 209 32659	IC BA4558
U8	4822 209 90214	IC OM5232/FBP/518
U9	4822 209 72893	IC PCF8566T
IC101	4822 209 32746	IC TEA5711T
IC201	4822 209 33988	IC BA3313L
IC301	4822 209 31544	IC TA8227P

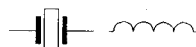


D1	4822 130 30621	Diode 1N4148
D3	4822 130 30621	Diode 1N4148
D101	4822 130 30621	Diode 1N4148
D102	4822 130 30621	Diode 1N4148
D301	5322 130 34574	Diode 1N4004
D302	5322 130 34574	Diode 1N4004
D303	5322 130 34574	Diode 1N4004
D304	5322 130 34574	Diode 1N4004
D306	4822 130 30621	Diode 1N4148
D307	4822 130 30621	Diode 1N4148



D308	4822 130 30621	Diode 1N4148
D309	4822 130 30621	Diode 1N4148
D501	4822 130 30621	Diode 1N4148
Z1	4822 130 34233	Zener 5.1V 1/2W
Z301	4822 130 83469	Zener 8.2V 1/2W

LED1	4822 130 83467	LED 3MM Green
LED201	4822 130 83466	LED 3MM Red



X1	4822 242 81991	Reson. FCR12.0M2S
X2	4822 242 81992	Reson. FCR16.93M2G
L101	4822 157 71566	AM Ant Coil
L103	4822 157 71567	FM Coil 2.5T
L401	4822 157 70806	Coil 560μH 3A396N

T101	4822 157 71595	IFT-AM Yel
T102	4822 157 71596	IFT-AM Whi
T103	4822 157 71597	AM Osc Coil Red
CF101	4822 157 71571	BPF A-258A PI-03-014
CF102	4822 157 71569	FM CF FFE1070MS13
CF103	4822 157 71569	FM CF FFE1070MS13
CF104	4822 157 71568	FM CF FCD1070MB13U
PVC	4822 157 71572	PVC FAT-16B2C (R)

- MISCELLANEOUS -

SW101	4822 277 21784	Slide Switch 4P3T
SW201	4822 276 13442	Push Switch 9P2T
SW202	4822 277 21782	Slide Switch
B-CUT	4822 277 21783	Slide Switch 2P2T
	4822 276 13443	Tact Switch
CD Sw	4822 278 90739	Quick Sw. LS-323-0
	4822 130 91472	LCD Display TCM-498
	4822 158 60645	Ferrite Bar D10X80
	4822 242 30282	Cond Mic WM-54BY
	4822 240 30747	Speaker 4" 6 OHM
	4822 267 31889	3.5 Earphone Jack
⚠	4822 267 31891	AC Socket (for -/00)
⚠	4822 265 20644	AC Socket UL (for -/17)
⚠	4822 146 31467	Transf. 230V (for -/00)
⚠	4822 146 21805	Transf. 120V UL (for -/17)
⚠	4822 070 31602	Fuse T1.6A/250V 5X20

Note : Only those parts mentioned in the list are normal service parts.